

# ACTA PHYSIOLOGICA

---

Official Journal of the Federation of European Physiological Societies (FEPS)

Chief Editor  
J. Henriksson, Stockholm

Volume 188, 2006  
Pages 1–236



**Blackwell**  
Publishing

Published monthly for the  
**Scandinavian Physiological Society**

Published for the  
Scandinavian Physiological Society by  
Blackwell Publishing Ltd

9600 Garsington Road, Oxford OX4 2DQ

Commerce Place, 350 Main Street, Malden,  
MA 02148, USA

550 Swanston Street, Carlton South,  
Vic. 3053, Australia

Kurfürstendamm 58, D-10707 Berlin, Germany

1 Rosenørns Allé,  
DK-1502 Copenhagen V C, Denmark

5F, GS Chiyoda Building, 3-11-14 Iidabashi,  
Chiyoda-ku, Tokyo 102-0072, Japan

2121 State Avenue, Ames, IA 50014-8300, USA

Journal compilation © 2006 Scandinavian Physiological Society

No part of this publication: (apart from articles marked 'OnlineOpen') may be reproduced, stored or transmitted in any form or by any means without the prior permission in writing from the copyright holder.

Authorization to photocopy items for internal and personal use is granted by the Scandinavian Physiological Society for libraries and other users registered with their local Reproduction Rights Organisation (RRO), e.g. Copyright Clearance Centre (CCC), 222 Rosewood Drive, Danvers, MA 01923, USA ([www.copyright.com](http://www.copyright.com)), provided the appropriate fee is paid directly to the RRO. This consent does not extend to other kinds of copying such as copying for general distribution, for advertising or promotional purposes, for creating new collective works or for resale. OnlineOpen articles are made available in accordance with the terms of the Creative Commons Deed, Attribution 2.0 (further details available from [www.creativecommons.org](http://www.creativecommons.org)), which allows Open Access dissemination of the article, but does not permit commercial exploitation or the creation of derivative works. Special requests should be addressed to Blackwell Publishing at: [journalsrights@oxon.blackwellpublishing.com](mailto:journalsrights@oxon.blackwellpublishing.com).

**Volume 188, Issue 1, September 2006**

1 Editor's Choice

M. C. Hogan and M. McGuigan

**CARDIOVASCULAR**

- 3 Muscle microvascular oxygenation in chronic heart failure: role of nitric oxide availability  
L. F. Ferreira, K. S. Hageman, S. A. Hahn, J. Williams, D. J. Padilla, D. C. Poole and T. I. Musch

- 15 Contribution of systemic arterial compliance and systemic vascular resistance to effective arterial elastance changes during exercise in humans  
T. Otsuki, S. Maeda, M. Iemitsu, Y. Saito, Y. Tanimura, R. Ajisaka and T. Miyauchi

**CELL BIOLOGY**

- 21 Hypotonic stress activates BK channels in clonal kidney cells via purinergic receptors, presumably of the P2Y<sub>1</sub> subtype  
T. Hafting, T. M. Haug, S. Ellefsen and O. Sand

**GASTRO-INTESTINAL**

- 33 Angiotensin II induced contraction of rat and human small intestinal wall musculature *in vitro*  
S. Ewert, E. Spak, T. Olbers, E. Johnsson, A. Edebo and L. Fändriks

**Volume 188, Issue 2, October 2006**

75 Editor's Choice

J. Lundberg and J. Bhattacharya

**REVIEW**

- 77 Atrophy and hypertrophy of skeletal muscles: structural and functional aspects  
O. Boonyarom and K. Inui

**CARDIOVASCULAR**

- 91 Forearm plethysmography in the assessment of vascular tone and resistance vasculature design: new methodological insights  
O. N. Mathiassen, N. H. Buus, H. W. Olsen, M. L. Larsen, M. J. Mulvany and K. L. Christensen
- 103 Adventitia-dependent mechanical properties of brachiocephalic ovine arteries in *in vivo* and *in vitro* studies  
E. I. Cabrera Fischer, D. Bia, J. M. Camus, Y. Zócalo, E. de Forteza and R. L. Armentano

**MUSCLE**

- 113 Soleus, plantaris and gastrocnemius VEGF mRNA responses to hypoxia and exercise are preserved in aged compared with young female C57BL/6 mice  
T. P. Gavin, L. M. Westerkamp and K. A. Zwetsloot

**MUSCLE**

- 41 Oestrogen status in relation to the early training responses in human thumb adductor muscles  
G. N. L. Onambele, S. A. Bruce and R. C. Woledge
- 53 Normalized lengthening peak torque is associated with temporal twitch characteristics in elderly women but not young women  
J. Cannon, D. Kay, K. M. Tarpenning and F. E. Marino

**RESPIRATORY**

- 63 Chest wall kinematics, respiratory muscle action and dyspnoea during arm vs. leg exercise in humans  
I. Romagnoli, M. Gorini, F. Gigliotti, R. Bianchi, B. Lanini, M. Grazzini, L. Stendardi and G. Scano

**NITRIC OXIDE**

- 123 Relationship between systemic nitric oxide metabolites and cyclic GMP in healthy male volunteers  
I. F. Metzger, J. T. C. Sertorio and J. E. Tanus-Santos

**RENAL**

- 129 Systemic effects of angiotensin III in conscious dogs during acute double blockade of the renin-angiotensin-aldosterone-system  
I. Gammelgaard, S. Wamberg and P. Bie

**RESPIRATORY**

- 139 New method for evaluation of lung lymph flow rate with intact lymphatics in anaesthetized sheep  
T. Naito, Y. Ozawa, M. Tomoyasu, M. Inagaki, M. Fukue, M. Sakai, T. Yamamoto, S. Ishikawa and M. Onizuka

- 151 Editors Choice  
B. Ebert and A.-P. Koivisto

#### CELL BIOLOGY

- 153 Pregnenolone sulphate and  $Zn^{2+}$  inhibit recombinant *rat* GABA<sub>A</sub> receptor through different channel property  
M.-D. Wang, M. Rahman, D. Zhu and T. Bäckström
- 163 Effects of sex hormones on ECG parameters and expression of cardiac ion channels in dogs  
L. Fülöp, T. Bányász, G. Szabó, I. B. Tóth, T. Bíró, I. Lőrincz, Á. Balogh, K. Pető, I. Mikó and P. P. Nánási

#### CARDIOVASCULAR

- 173 Enhancement of methoxamine-induced contractile responses of rat ventricular muscle in streptozotocin-induced diabetes is associated with  $\alpha_{1A}$  adrenoceptor upregulation  
K. Kamata, T. Satoh, T. Matsumoto, E. Noguchi, K. Taguchi, T. Kobayashi, H. Tanaka and K. Shigenobu
- 185 Reduced pH and contractility in failing rat cardiomyocytes  
O. J. Kemi, I. Arbo, M. A. Høydal, J. P. Loennechen, U. Wisløff, G. L. Smith and Ø. Ellingsen
- 195 Different effect of ATP on ANP receptor guanylyl cyclase in spontaneously hypertensive and normotensive rats  
G. E. Woodard, J. Zhao and J. A. Rosado

#### MUSCLE

- 207 Human skeletal muscle fibre type variations correlate with PPAR $\alpha$ , PPAR $\delta$  and PGC-1 $\alpha$  mRNA  
D. K. Krämer, M. Ahlsén, J. Norrbom, E. Jansson, N. Hjeltne, T. Gustafsson and A. Krook
- 217 Muscle type-specific response of PGC-1 $\alpha$  and oxidative enzymes during voluntary wheel running in mouse skeletal muscle  
S. Ikeda, H. Kawamoto, K. Kasaoka, Y. Hitomi, T. Kizaki, Y. Sankai, H. Ohno, S. Haga and T. Takemasa

#### LETTER TO THE EDITOR

- 225 Workshop on 'Innovative methods in teaching physiology. Experiences with problem-based learning' at the joint meeting of the German Physiological Society and the Federation of European Physiological Societies, Munich, March 26-29, 2006  
L. H. E. H. Snoeckx, M. oude Egbrink and G. J. van der Vusse
- 229 Acknowledgements to referees
- 233 Author index
- 235 Subject index

